

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. *(Original)* A method comprising the steps of:
 - a) dispersing carbon nanotubes in an acidic medium to form dispersed carbon nanotubes with substantially exposed sidewalls; and
 - b) functionalizing the dispersed carbon nanotubes by covalently attaching functional groups to their substantially exposed sidewalls to yield sidewall functionalized carbon nanotubes.
2. *(Original)* The method of Claim 1, wherein the carbon nanotubes are selected from the group consisting of single-wall carbon nanotubes, double-wall carbon nanotubes, multi-wall carbon nanotubes, small diameter carbon nanotubes, and combinations thereof.
3. *(Currently amended)* The method of Claim 1 ~~or 2~~, wherein the acid medium comprises a superacid.
4. *(Currently amended)* The method of Claim 1 ~~or 2~~, wherein the acid medium comprises an oxoacid selected from the group consisting of H₂SO₄, H₃PO₄, HClO₄, and HNO₃, and combinations thereof.
5. *(Currently amended)* The method of Claim 1 ~~or 2~~, wherein the acid medium comprises H₂SO₄.
6. *(Currently amended)* The method of ~~Claim 1-4, or 5~~ Claim 1, wherein the acid medium comprises a persulfate species.
7. *(Currently amended)* The method of ~~Claim 1-5, or 6~~ Claim 1, wherein the step of functionalizing involves a functionalizing agent selected from the group consisting of carbocations, halonium ions, metal cations, carbon radicals, halogen radicals, hetero-atom radical species, metal-based radicals, dipolarophiles, and combinations thereof.
8. *(Currently amended)* The method of ~~Claim 1-6, or 7~~ Claim 1, wherein the step of functionalizing involves a diazonium species.

9. *(Original)* The method of Claim 8, wherein the diazonium species is generated *in situ* by reaction of an aniline species with a nitrite species.
10. *(Original)* The method of Claim 8, wherein the diazonium species is provided as a diazonium salt.
11. *(Original)* The method of Claim 8, wherein the diazonium species is generated from a triazene precursor.
12. *(Currently amended)* The method of ~~Claims 1-10, or 11~~ Claim 1 further comprising at least one post-processing step selected from the group consisting of diluting, filtering, washing, drying, and combinations thereof.
13. *(Currently amended)* The method of ~~Claims 1-10, or 11~~ Claim 1 further comprising the steps of:
 - a) isolating the sidewall functionalized carbon nanotubes from the acidic medium by filtering to yield isolated sidewall functionalized carbon nanotubes; and
 - b) resuspending the isolated sidewall functionalized carbon nanotubes in a solvent.
14. *(Original)* The method of Claim 13, wherein the solvent is water.
15. *(Currently amended)* The method of ~~Claims 1-13, or 14~~ Claim 1, wherein the functionalized carbon nanotubes have at least about 1 functional group per every 100 carbon nanotube carbons.
16. *(Original)* A method comprising the steps of:
 - a) dispersing single-wall carbon nanotubes in a superacid medium to form a dispersion;
 - b) adding aniline species and a nitrite species to the dispersion to form a reaction mixture; and
 - c) reacting the reaction mixture to form functionalized single-wall carbon nanotubes.
17. *(Original)* The method of Claim 16, wherein the single-wall carbon nanotubes have been oxidatively treated.

18. *(Currently amended)* The method of Claim 16 ~~or 17~~, wherein the single-wall carbon nanotubes are homogeneous in a characteristic selected from the group consisting of length, diameter, chirality, and combinations thereof.
19. *(Currently amended)* The method of ~~Claims 16-17, or 18~~ Claim 16 further comprising a step of filtering the dispersion to remove any large particles.
20. *(Currently amended)* The method of ~~Claims 16-18, or 19~~ Claim 16, wherein the superacid medium is selected from the group consisting of oleum, chlorosulfonic acid, triflic acid, and combinations thereof.
21. *(Currently amended)* The method of ~~Claims 16-19, or 20~~ Claim 16, wherein the aniline species comprises sulfanilic acid.
22. *(Currently amended)* The method of ~~Claims 16-20, or 21~~ Claim 16 further comprising a step of adding a radical source to the reaction mixture.
23. *(Original)* The method of Claim 22, wherein the radical source is selected from the group consisting of 2,2'-azo-bis-isobutyronitrile, benzoyl peroxide, di-tert-butylperoxide, and combinations thereof.
24. *(Currently amended)* The method of ~~Claims 16-22, or 23~~ Claim 16, wherein the step of reacting comprises heating and stirring.
25. *(Currently amended)* The method of ~~Claims 16-23, or 24~~ Claim 16 further comprising the steps of:
 - a) diluting the reaction mixture with water, subsequent to forming functionalized single-wall carbon nanotubes, to form a diluted reaction product mixture;
 - b) filtering the diluted reaction product mixture over a filter to isolate the functionalized single-wall carbon nanotubes; and
 - c) washing the isolated functionalized single-wall carbon nanotubes with a washing solvent to obtain washed functionalized single-wall carbon nanotubes.
26. *(Original)* The method of Claim 25, wherein the washing solvent is acetone.
27. *(Currently amended)* The method of ~~Claims 25 or 26~~ Claim 25 further comprising the steps of:

- a) re-suspending the washed functionalized single-wall carbon nanotubes in water to form a re-suspension;
 - b) filtering the re-suspension to recover re-washed functionalized single-wall carbon nanotubes.
28. *(Currently amended)* The method of ~~Claims 16-26, or 27~~ Claim 16, wherein the functionalized single-wall carbon nanotubes have at least about 1 functional group per every 100 carbon nanotube carbons.